

# Project Title: Set Up AWS Backup Plan for EC2 and RDS

## 1. Objectives

The primary objective of this project is to deploy and secure a sample database application on AWS using:

- EC2 instance (compute
- Amazon RDS (database)
- AWS Backup for backup and recoveryThe goal is to implement a reliable backup and restore strategy, demonstrate data availability, and ensure data integrity.

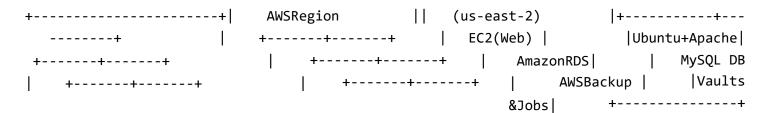
### 2. Introduction

Cloud-based deployments are now the standard for modern applications, providing scalability, security, and cost efficiency. In this project, we built a simple database-driven application using AWS infrastructure services. We configured backups, tested data recovery, and demonstrated the entire workflow of provisioning, securing, and backing up cloud resources.

## 3. Technology Stack

Component	Technology / Service		
Compute	Amazon EC2 (Ubuntu)		
Database	Amazon RDS (MySQL 8.0)		
Backup & Restore	AWS Backup		
Web Server	Apache2		
Programming / CLI	Linux shell, MySQL client		
OS	Ubuntu 22.04 LTS (on EC2)		
Region	us-east-2 (Ohio)		

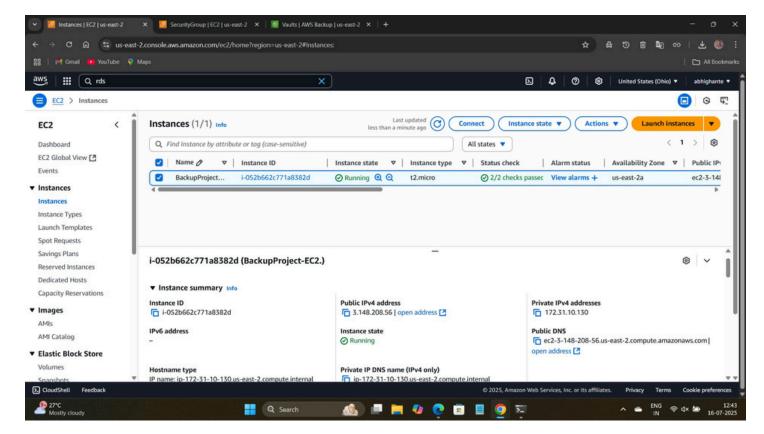
## 4. System Structure Diagram



## 5. Implementation Steps

#### Step 1: Launch EC2 instance

• Created at 2.micro EC2 instance in us-east-2a



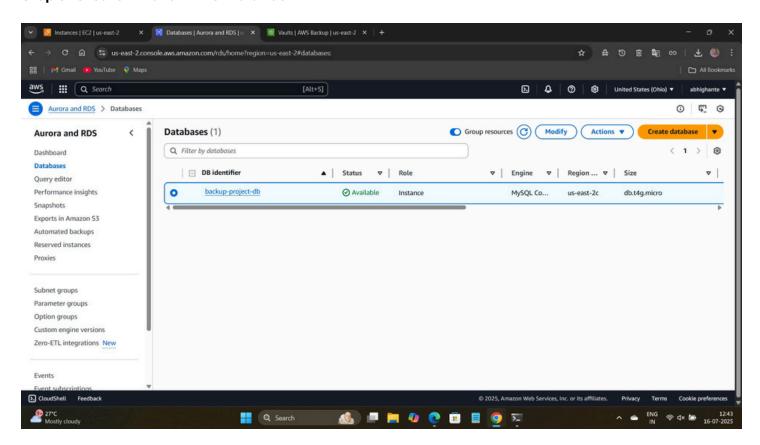
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• Configured security groups to allow SSH (port 22) and HTTP (port 80)

#### Step 2: Set up Apache web server

sudo apt updatesudo apt install apache2 -y

#### **Step 3: Create Amazon RDS instance**



- Launched MySQL database instance (db.t4g.micro) named backup-project-db
- Connected to it from EC2 via MySQL client

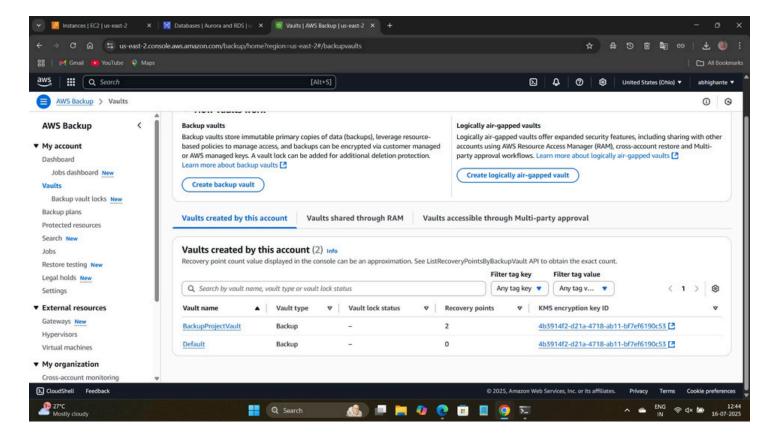
#### Step 4: Create and populate database

CREATE DATABASE testdb; USE testdb; CREATE TABLE sample\_table ( id INT AUTO\_INCREMENT PRIMARY KEY, name VARCHAR(50)); INSERT INTO sample\_table (name) VALUES ('Backup Test 1'), ('Backup Test 2'); SELECT \* FROM sample\_table;

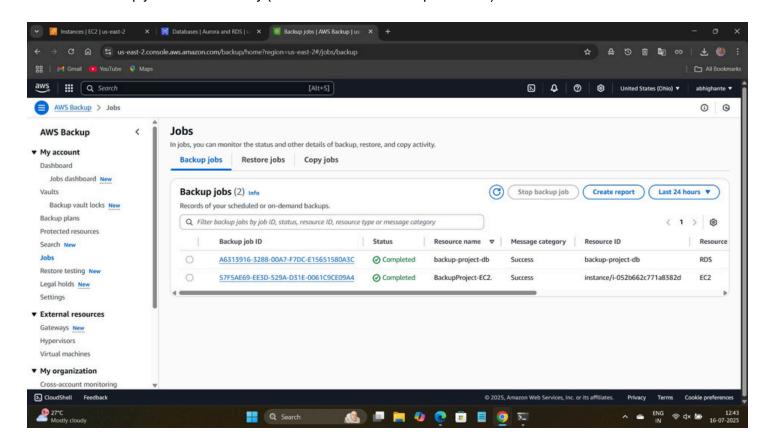
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■ ubuntu@ip-172-31-10-130: ~
ERROR 1045 (2000): Access denied for user 'admin'0'172.31.10.130' (using password: YES)
ubuntu@ip-172-31-10-130:~$ mysql -h backup-project-db.cjyqg4wogmpl.us-east-2.rds.amazonaws.com -u admin -p
Welcome to the MySQL monitor. Commands end with ; or \g. Your MySQL connection id is 30
Server version: 8.0.41 Source distribution
Copyright (c) 2000, 2025, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> CREATE DATABASE testdb;
Query OK, 1 row affected (0.02 sec)
mysql> USE testdb;
sample_table;
Database changed
mysql> CREATE TABLE sample_table (id INT AUTO_INCREMENT PRIMARY KEY, name VARCHAR(50));
Query OK, 0 rows affected (0.05 sec)
mysql> INSERT INTO sample_table (name) VALUES ('Backup Test 1'), ('Backup Test 2');
Query OK, 2 rows affected (0.00 sec)
Records: 2 Duplicates: 0 Warnings: 0
 mysql> SELECT * FROM sample_table;
| id | name
   1 | Backup Test 1
2 | Backup Test 2
2 rows in set (0.01 sec)
mysql> exit;
Bye
ubuntu@ip-172-31-10-130:~$ |
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#### **Step 5: Configure AWS Backup**

Created backup vaults

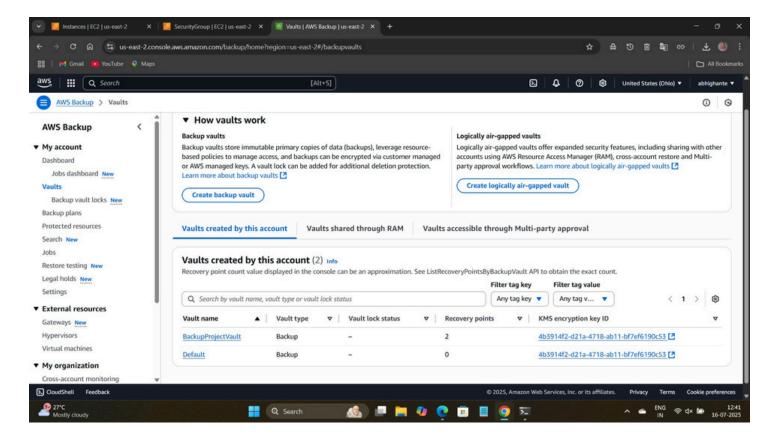


- Defined backup plans targeting EC2 and RDS
- Ran backup jobs successfully (as seen in AWS Backup console)



Step 6: Verify backups

• Verified recovery points created in backup vaults



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Tested restore functionality

#### 6. Results

- EC2 instance (i-052b662c771a8382d) is running and reachable (3.148.208.56)
- RDS instance backup-project-db is live, running MySQL 8.0, and contains test data
- AWS Backup vaults hold recovery points for both EC2 and RDS resources
- Backup jobs completed successfully with status Success

#### 7. Conclusion

This project successfully demonstrates deploying a database application on AWS, connecting it securely to an EC2 instance, and implementing automated backup strategies using AWS Backup. The workflow ensures data resilience, supports disaster recovery, and showcases practical cloud infrastructure management.

Name:- Abhishek Ghante

https://github.com/abhighante37/AWSBackupSetup

**Cloud & DevOps Intern Cravita Technologies**